

CLAIMS

- 5 1. A nucleotide sequence shown as SEQ I.D. No:1 wherein the expression product of the nucleotide sequence has the capability of not substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.

10 2. A derivative, fragment, variant or homologue of the nucleotide sequence shown as SEQ I.D. No:1, wherein the expression product of the nucleotide sequence has the capability of not substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.

15 3. A homologue according to claim 2 wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.

20 4. A mutant of the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof, wherein the expression product of the mutant nucleotide sequence has the capability of substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.

25 5. A method of medical treatment comprising the step of administering a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof.

30 6. A method of medical treatment according to claim 5 wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.

35 7. A method of medical treatment comprising the step of administering a mutant of the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof.

40 8. A method of affecting the growth behaviour of cells comprising the step of administering the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof to the cells.

9. A method of affecting the growth behaviour of cells according to claim 8, wherein the homologue comprises nucleotide residues 508 to 735 of the *C.albicans Cdc24* gene presented as SEQ. I.D. No: 23.
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10. A method of affecting the growth behaviour of cells comprising the step of administering a mutant of the nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof to the cells.
- 10 11. Use of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.
- 15 12. The use according to claim 11, wherein the homologue comprises nucleotide residues 508 to 735 of the *C.albicans Cdc24* gene presented as SEQ. I.D. No: 23.
13. Use of a mutant of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof in a screen to identify one
20 or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.
- 25 14. An assay comprising contacting an agent with a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof in the presence of a G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the nucleotide sequence or the expression product with the G β .
- 30 15. An assay according to claim 14 wherein the homologue comprises nucleotide residues 508 to 735 of the *C.albicans Cdc24* gene presented as SEQ. I.D. No: 23.
16. An assay comprising contacting an agent with a mutant of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression

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product thereof in the presence of a G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the mutant nucleotide sequence or the expression product with the G β .

- 5 17. A kit comprising a nucleotide sequence shown as SEQ. I.D. No: 1 or a derivative, fragment, variant or homologue thereof or the expression product thereof; and a G β capable of being associated with Cdc24p or a homologue thereof.
- 10 18. A kit according to claim 17 comprising a homologue of SEQ. I.D. No: 1, wherein the homologue comprises nucleotide residues 508 to 735 of the C.albicans Cdc24 gene presented as SEQ. I.D. No: 23.
- 15 19. A kit comprising a mutant of a nucleotide sequence shown as SEQ I.D. No:1 or a derivative, fragment, variant or homologue thereof or the expression product thereof; and a G β capable of being associated with Cdc24p or a homologue thereof.
- 20 20. A protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof, wherein the protein has the capability of not substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated with the Cdc24p or the homologue thereof.
- 25 21. A fragment of the protein sequence shown as SEQ. I.D. No: 2 according to claim 20 wherein the fragment is the 19 amino acid Cdc24 fragment SEQ. I.D. No: 21or the 19 amino acid Dbl fragment SEQ. I.D. No: 22.
22. A homologue of the protein sequence according to claim 20, wherein the homologue is the C. albicans Cdc24 76 amino acid fragment SEQ. I.D. No: 34.
- 30 23. A mutant of the protein sequence shown as SEQ LD. No:2 or a derivative, fragment, variant or homologue thereof, wherein the mutant protein has the capability of substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated with the Cdc24p or the homologue thereof.

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24. The mutant according to claim 23 wherein the mutant is the *S.cerevisiae* Cdc24-m1 mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 mutant (SEQ. I.D. No: 6) and the *S.cerevisiae* Cdc24-m3 mutant (SEQ. I.D. No: 8)
- 5 25. A method of medical treatment comprising the step of administering a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof.
26. A method according to claim 25 comprising the step of administering a fragment of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is the 19 amino acid
10 Cdc24 fragment SEQ. I.D. No: 21.
27. A method according to claim 25 comprising the step of administering a homologue of the protein sequence shown as SEQ I.D. No:2, wherein the homologue is the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34.
- 15 28. A method of medical treatment comprising the step of administering a mutant of the protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof for use in medicine.
- 20 29. A method according to claim 28 wherein the mutant is selected from the group comprising *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the *S. cerevisiae* Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).
- 25 30. A method according to claim 28 wherein the method comprises the step of administering a fragment of a mutant of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is selected from the group comprising the *S.cerevisiae* Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D. No: 18), the *S.cerevisiae* Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19) and the *S. cerevisiae* Cdc24-m3 mutant 19 amino acid
30 fragment (SEQ. I.D. No: 20).

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31. A method of modulating the growth behaviour of cells comprising the step of administering a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof.
- 5 32. A method according to claim 31 comprising the step of administering a fragment of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is the 19 amino acid *S. cerevisiae* Cdc24 fragment SEQ. I.D. No: 21.
- 10 33. A method according to claim 31 comprising the step of administering a homologue of the protein sequence shown as SEQ I.D. No:2, wherein the homologue is the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34.
- 15 34. A method of modulating the growth behaviour of cells comprising the step of administering a mutant of the protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof for use in medicine.
- 20 35. A method according to claim 31 wherein the mutant is selected from the group comprising the *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the *S. cerevisiae* Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).
- 25 36. A method according to claim 31 wherein the method comprises the step of administering a fragment of a mutant of the protein sequence shown as SEQ I.D. No:2, wherein the fragment is selected from the group comprising the *S.cerevisiae* Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D. No: 18), the *S.cerevisiae* Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19) and the *S. cerevisiae* Cdc24-m3 mutant 19 amino acid fragment (SEQ. I.D. No: 20).
- 30 37. Use of a protein sequence shown as SEQ I.D. No: 2 or a derivative, fragment, variant or homologue thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.

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38. The use according to claim 37 wherein a homologue of the protein sequence shown as SEQ I.D. No: 2 is used and wherein the homologue is the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34
- 5 39. Use of a mutant of a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof in a screen to identify one or more agents that are capable of affecting the interaction of Cdc24p or a homologue thereof with a G β or an associated Rho-family GTPase.
- 10 40. The use according to claim 39 wherein the mutant is selected from the group comprising the *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the *S. cerevisiae* Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).
- 15 41. An assay comprising contacting an agent with a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof in the presence of a G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the protein sequence with the G β or the Rho-family GTPase.
- 20 42. An assay according to claim 41 wherein the agent is contacted with a homologue of the protein sequence shown as SEQ. I.D. No: 2, said homologue being the *C. albicans* Cdc24 76 amino acid fragment SEQ. I.D. No: 34.
- 25 43. An assay comprising contacting an agent with a mutant of a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof in the presence of G β capable of being associated with Cdc24p or a homologue thereof; and determining whether the agent is capable of affecting the interaction of the mutant protein sequence with the G β or the Rho-family GTPase.
- 30 44. An assay according to claim 43 wherein the mutant is selected from the group comprising *S.cerevisiae* Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the *S.cerevisiae* Cdc24-

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m2 76 amino acid mutant (SEQ. I.D. No: 6) and the S. cerevisiae Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).

45. An assay according to claim 43 wherein the assay comprises contacting an agent with a fragment of a mutant of the protein sequence shown as SEQ I.D. No:2 and wherein the fragment is selected from the group comprising the S.cerevisiae Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D. No: 18), the S.cerevisiae Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19) and the S. cerevisiae Cdc24-m3 mutant 19 amino acid fragment (SEQ. I.D. No: 20).

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46. A kit comprising a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof; and a G β capable of being associated with Cdc24p or a homologue thereof.

15 47. A kit according to claim 46 wherein the kit comprises a homologue of the protein sequence shown as SEQ. I.D. No: 2, said homologue being the C. albicans Cdc24 76 amino acid fragment SEQ. I.D. No: 34.

20 48. A kit comprising a mutant of a protein sequence shown as SEQ I.D. No:2 or a derivative, fragment, variant or homologue thereof; and a G β capable of being associated with Cdc24p or a homologue thereof.

25 49. A kit according to claim 48 wherein the mutant is selected from the group comprising S.cerevisiae Cdc24-m1 76 amino acid mutant (SEQ. I.D. No: 4), the S.cerevisiae Cdc24-m2 76 amino acid mutant (SEQ. I.D. No: 6) and the S. cerevisiae Cdc24-m3 76 amino acid mutant (SEQ. I.D. No: 8).

30 50. A kit according to claim 48 wherein the kit comprises a fragment of a mutant of the protein sequence shown as SEQ I.D. No:2 and wherein the fragment is selected from the group comprising the S.cerevisiae Cdc24-m1 mutant 19 amino acid fragment (SEQ. I.D. No: 18), the S.cerevisiae Cdc24-m2 mutant 19 amino acid fragment (SEQ. I.D. No: 19) and the S. cerevisiae Cdc24-m3 mutant 19 amino acid fragment (SEQ. I.D. No: 20).

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51. A GEF capable of interacting with a G β such that the interaction provides a connection between G protein coupled receptor activation and polarised cell growth.
52. An agent capable of affecting a GEF/G β interaction, which interaction provides a connection between G protein coupled receptor activation and polarised cell growth.
53. An assay method comprising the use of the sequence presented in SEQ ID No 4 or a nucleotide sequence coding for same
- 10 54. Use of an agent identified by the assay of any one of claims 14, 16, 41, 43 in a method of modulating cell growth.
55. A method of medical treatment according to claim 5, wherein the method is for treatment of fungal infection.
- 15 56. A method of medical treatment according to claim 6, wherein the method is for treatment of fungal infection.
57. A method of medical treatment according to claim 7, wherein the method is for treatment of fungal infection.
- 20 58. A method of medical treatment according to claim 25, wherein the method is for treatment of fungal infection.
- 25 59. A method of medical treatment according to claim 26, wherein the method is for treatment of fungal infection.
60. A method of medical treatment according to claim 27, wherein the method is for treatment of fungal infection.
- 30 61. A method of medical treatment according to claim 28, wherein the method is for treatment of fungal infection.

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62. A method of medical treatment according to claim 29, wherein the method is for treatment of fungal infection.
63. A method of medical treatment according to claim 30, wherein the method is for treatment of fungal infection.
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64. A mutant of a STE4 nucleotide sequence (SEQ I.D. No:10) or a derivative, fragment, variant or homologue thereof, wherein the expression product of the mutant nucleotide sequence has the capability of substantially affecting the interaction of G β with Cdc24p or a homologue thereof that is usually capable of being associated therewith.
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65. The mutant, derivative, fragment, variant or homologue thereof according to claim 64, wherein the mutant is SEQ. I.D. No: 12 or SEQ. I.D. No: 14.